

Amendment and Response
Applicants: Bruce S. Ellingboe et al.
Serial Number: 09/963,878

Attorney Docket: CV0290US

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

1 (Currently Amended). An extracorporeal blood perfusion system for receiving venous blood from a patient and for returning oxygenated blood to the patient in a cardiopulmonary bypass procedure, comprising:

a disposable assembly including a cartridge and a plurality of interconnected tubing lines, the cartridge having a plurality of internal fluid passageways, wherein a first of the tubing lines is fluidly interconnected with at least one of the plurality of fluid passageways, wherein the disposable assembly comprises an oxygenator connected in a blood circuit, ~~and~~ wherein the disposable assembly defines the blood circuit for receiving venous blood from the patient and transferring oxygenated blood to the patient in a cardiopulmonary bypass procedure, and wherein the disposable assembly further comprises a reservoir having an inlet connected to receive venous blood from the patient through a second of the positioned tubing lines; and

a control unit having a component interface region, the component interface region including a cartridge interface region for operatively interfacing with the cartridge, ~~and~~ a first pump for operatively interfacing with ~~a~~ the blood circuit, wherein the venous blood is pumped through the blood circuit by the first pump, and wherein the component interface region further comprises a flow control clamp for controlling the flow of venous blood through the second tubing line to the reservoir.

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2 (Canceled).

3 (Currently Amended). The extracorporeal blood perfusion system of claim 2 1, wherein the flow control clamp is controllable to maintain at least one of a predetermined relative flow percentage through the second tubing line to the reservoir and a predetermined fluid volume within the reservoir.

4 (Currently Amended). The extracorporeal blood perfusion system of claim 2 1, wherein the oxygenator is connected in the blood circuit downstream from the reservoir, and wherein the first pump is configured to pump accumulated venous blood from the reservoir through the oxygenator to provide for the transfer of the oxygenated blood to the patient.

5 (Currently Amended). The extracorporeal blood perfusion system of claim 1, wherein ~~the disposable assembly further comprises a reservoir for accumulating the venous blood from the patient, and~~ the component interface region further comprises a sensor for detecting the presence of gaseous bubbles within the oxygenated blood and at least one valve assembly configured for diverting the flow of the oxygenated blood to the reservoir upon detection of gaseous bubbles in the oxygenated blood by the sensor.

6 (Original). The extracorporeal blood perfusion system of claim 1, wherein the disposable assembly further defines a cardioplegia circuit for supplying a cardioplegia solution to the patient, the cardioplegia circuit including a fluid interconnection with the blood circuit for flowing at least a portion of the oxygenated blood to one of the plurality of fluid passageways for mixture with a

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cardioplegia solution.

7 (Original). The extracorporeal blood perfusion system of claim 1, wherein the component interface region further comprises a plurality of sensors positioned for monitoring an oxygen saturation, hematocrit and temperature of the venous blood received in the blood circuit.

8 (Original). The extracorporeal blood perfusion system of claim 1, wherein the component interface region further comprises a pressure sensor positioned for monitoring a fluid pressure of the oxygenated blood in the blood circuit.

9 (Original). The extracorporeal blood perfusion system of claim 8, wherein the control unit is operable to automatically suspend operation of the first pump when the pressure sensor detects a fluid pressure greater than a predetermined level.

10 (Original). The extracorporeal blood perfusion system of claim 1, wherein the cartridge comprises a housing including a first rigid portion connected to a second flexible portion.

11 (Original). The extracorporeal blood perfusion system of claim 10, wherein the cartridge interface region further includes a pressure sensor configured to sense fluid pressure in an internal passageway of the cartridge through the second flexible portion of the housing.

12 (Original). The extracorporeal blood perfusion system of claim 1, wherein the cartridge interface region further includes a valve actuator and the cartridge further

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includes a valve station, the valve station being in fluid communication with an internal passageway, the valve station having a flexible member configured to be moveable from a first position allowing fluid flow between the internal passageways and a second position preventing fluid flow between the internal passageways, the valve actuator being configured to interface with the flexible member to cause movement of the flexible member between the first and second positions.